



DCO Submission

Environmental Statement

Chapter 5: Noise and Vibration
Appendix 5.7: Derivation of Background Sound Levels -
Operational Noise Assessment

Document 6.5G

On behalf of
Oxfordshire Railfreight Limited

Prepared by Vanguardia
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Appendix 5.7

Derivation of background sound levels for SRFI operational noise assessment

Appendix 5.7 Derivation of background sound levels

Measured Background Sound Levels

Table 1 Background sound levels – Daytime (07:00 – 23:00)

Monitoring Location	Background Sound Level (L _{A90,15min} dB) - Day							
	Broadly Westerly Winds				Broadly Easterly Winds			
	Modal Value	Lower Quartile	Difference	Sens Test Required?	Modal Value	Lower Quartile	Difference	Sens Test Required?
N1	40	37	-3	YES	47	42	-5	YES
N2	36	35	-1	NO	49	46	-3	YES
N3	41	37	-4	YES	46	40	-6	YES
N4	44	42	-2	NO	55	52	-3	YES
N5	54	47	-7	YES	55	48	-7	YES
N6	49	46	-3	YES	56	52	-4	YES
N7	51	48	-3	YES	62	56	-6	YES
N8	61	59	-2	NO	68	63	-5	YES
N9	38	35	-3	YES	42	40	-2	NO
N10	37	35	-2	NO	41	38	-3	YES
N11	52	45	-7	YES	54	51	-3	YES
N12	41	38	-3	YES	50	45	-5	YES
N13	44	42	-2	NO	45	45	0	NO
N14	45	43	-2	NO	52	49	-3	YES

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Table 2 Background sound levels – Night-time (23:00 – 07:00)

Monitoring Location	Background Sound Level (L _{A90,15min} dB) - Night							
	Broadly Westerly Winds				Broadly Easterly Winds			
	Modal Value	Lower Quartile	Difference	Sens Test Required?	Modal Value	Lower Quartile	Difference	Sens Test Required?
N1	35	34	-1	NO	42	39	-3	YES
N2	38	34	-4	YES	45	42	-3	YES
N3	33	34	1	NO	41	39	-2	NO
N4	40	39	-1	NO	51	46	-5	YES
N5	41	40	-1	NO	53	41	-12	YES
N6	37	36	-1	NO	48	42	-6	YES
N7	46	45	-1	NO	51	49	-2	NO
N8	54	53	-1	NO	58	54	-4	YES
N9	33	32	-1	NO	39	38	-1	NO
N10	29	29	0	NO	37	35	-2	NO
N11	38	38	0	NO	49	44	-5	YES
N12	34	33	-1	NO	41	41	0	NO
N13	34	33	-1	NO	42	41	-1	NO
N14	39	35	-4	YES	47	44	-3	YES

Appendix 5.7 Derivation of background sound levels

Table 3 Representative monitoring positions for receptor locations

Survey Location	Representative of Receptor(s)	Notes
N1	R5-S, 05	Survey position at/representative of receptor locations.
N2	R6-E, R6-S, 04	Survey position at/representative of receptor locations.
N3	R2, R3, R12	Survey position representative of receptor location.
N4	R00, R13-S, R14-W, R15, R24-W	Survey position at receptor R15. Representative of rear facades of these buildings which is the façade that would be most exposed to operational noise from the SRFI.
N5	R25, R26-S, R26-W, R27-S, R27-W	Survey position at receptor R27. Position also considered representative of R25 and R26.
N9	R30-E, R30-S, R30-W, R30A, R34A	Survey position at/representative of receptor locations.
N10	R31, R32, R33, R34, R35-E	Monitoring position close to receptor R32 and is representative of R31, R32 and R33, R34 and R35 although likely to have higher current exposure (in terms of L_{Aeq}) owing to its closer proximity to Camp Road.
N11	R28, 06	Monitoring location is a similar distance back from B430 to R28 background sound level exposure likely to be similar. Also considered representative of 06.
N12	R36	Survey position at receptor location.
N13	R37-N, R37-E, R39	Survey position is close to receptor R39 and representative of the western façade. It was approximately 50m back from centre of the carriageway. R37 is further from the centre of the carriageway but the L_{A90} level is considered representative of both locations.

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Table 4 Background sound levels to be used in assessments of operational sound - DAY

Receptor	DAY – Westerly winds		DAY – Easterly Winds	
	Modal Background Sound Level	Sensitivity Test Background Sound Level	Modal Background Sound Level	Sensitivity Test Background Sound Level
	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}
(R00) Property in Woods - South	44	N/A	55	52
(R02) Forge Place - West	41	37	46	40
(R03) 100 East Street - South	41	37	46	40
(R05-S) Crossroads Farm - South	40	37	47	42
(R06-E) Quarry Cottages - East	36	N/A	49	46
(R06-S) Quarry Cottages - South	36	N/A	49	46
(R12) Castle Fields - South	41	37	46	40
(R13-S) Manor Farm Ardley - South	44	N/A	55	52
(R14-W) Church Road - West	44	N/A	55	52
(R15) Orchard Cottage - South	44	N/A	55	52
(R24-W) 3 Station Road - West	44	N/A	55	52
(R25) Wood View - South	54	47	55	48
(R26-S) The Bungalow - South	54	47	55	48
(R26-W) The Bungalow - West	54	47	55	48
(R27-S) Upland Cottage - South	54	47	55	48
(R27-W) Upland Cottage - West	54	47	55	48
(R28-W) Ardley Field Farm Cottages - West	52	45	54	51
(R30-E) Upper Heyford - East	38	35	42	N/A
(R30-S) Upper Heyford - South	38	35	42	N/A

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Receptor	DAY – Westerly winds		DAY – Easterly Winds	
	Modal Background Sound Level	Sensitivity Test Background Sound Level	Modal Background Sound Level	Sensitivity Test Background Sound Level
	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}
(R30-W) Upper Heyford - West	38	35	42	N/A
(R30A) Upper Heyford	38	35	42	N/A
(R31) Camp Road - East	37	N/A	41	38
(R32) Heyford Grange - East	37	N/A	41	38
(R33) 42 Trenchford Close - East	37	N/A	41	38
(R34) PYE Homes - East	37	N/A	41	38
(R34A) Richborough Estates Residential Development	38	35	42	N/A
(R35-E) 50 Duvall Park - East	37	N/A	41	38
(R36) Manor Farm - North	41	38	50	45
(R37-N) Manor Farm Cottages - North	44	N/A	45	N/A
(R37-E) Manor Farm Cottages - East	44	N/A	45	N/A
(R39-W) Dewars Farm - West	44	N/A	45	N/A
(O4) Ardley Woods	36	N/A	49	46
(O5) Ardley Fields Quarry LWS	40	37	47	42
(O6) Ardley Fields Ponds West LWS	52	45	54	51
(O7) The Heath pDWS	37	N/A	41	38
(O8) Upper Heyford Airfield LWS	38	35	42	N/A

Appendix 5.7 Derivation of background sound levels

Table 5 Background sound levels to be used in assessments of operational sound - NIGHT

Receptor	NIGHT - Westerly winds		NIGHT - Easterly winds	
	Modal Background Sound Level	Sensitivity Test Background Sound Level	Modal Background Sound Level	Sensitivity Test Background Sound Level
	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}
Reference, name and façade				
(R00) Property in Woods - South	40	N/A	51	46
(R02) Forge Place - West	33	34	41	39
(R03) 100 East Street - South	33	34	41	39
(R05-S) Crossroads Farm - South	35	N/A	42	39
(R06-E) Quarry Cottages - East	38	34	45	42
(R06-S) Quarry Cottages - South	38	34	45	42
(R12) Castle Fields - South	33	34	41	39
(R13-S) Manor Farm Ardley - South	40	N/A	51	46
(R14-W) Church Road - West	40	N/A	51	46
(R15) Orchard Cottage - South	40	N/A	51	46
(R24-W) 3 Station Road - West	40	N/A	51	46
(R25) Wood View - South	41	N/A	53	41
(R26-S) The Bungalow - South	41	N/A	53	41
(R26-W) The Bungalow - West	41	N/A	53	41
(R27-S) Upland Cottage - South	41	N/A	53	41
(R27-W) Upland Cottage - West	41	N/A	53	41
(R28-W) Ardley Field Farm Cottages - West	38	N/A	49	44
(R30-E) Upper Heyford - East	33	N/A	39	N/A
(R30A) Upper Heyford	33	N/A	39	N/A

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Receptor	NIGHT - Westerly winds		NIGHT - Easterly winds	
	Modal Background Sound Level	Sensitivity Test Background Sound Level	Modal Background Sound Level	Sensitivity Test Background Sound Level
	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}
(R30-S) Upper Heyford - South	33	N/A	39	N/A
(R30-S) Upper Heyford - South	33	N/A	39	N/A
(R30-W) Upper Heyford - West	33	N/A	39	N/A
(R30-W) Upper Heyford - West	33	N/A	39	N/A
(R30A) Upper Heyford	33	N/A	39	N/A
(R30A) Upper Heyford	33	N/A	39	N/A
(R31) Camp Road - East	29	N/A	37	N/A
(R32) Heyford Grange - East	29	N/A	37	N/A
(R33) 42 Trenchford Close - East	29	N/A	37	N/A
(R34) PYE Homes - East	29	N/A	37	N/A
(R34) PYE Homes - East	29	N/A	37	N/A
(R34A) Richborough Estates Residential Development	33	N/A	39	N/A
(R35-E) 50 Duvall Park - East	29	N/A	37	N/A
(R36) Manor Farm - North	34	N/A	41	N/A
(R37-N) Manor Farm Cottages - North	34	N/A	42	N/A
(R37-E) Manor Farm Cottages - East	34	N/A	42	N/A
(R39-W) Dewars Farm - West	34	N/A	42	N/A
(O4) Ardley Woods	38	34	45	42
(O5) Ardley Fields Quarry LWS	35	N/A	42	39
(O6) Ardley Fields Ponds West LWS	38	N/A	49	44

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Receptor	NIGHT - Westerly winds		NIGHT - Easterly winds	
	Modal Background Sound Level	Sensitivity Test Background Sound Level	Modal Background Sound Level	Sensitivity Test Background Sound Level
Reference, name and façade	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}	dB L _{A90,15min}
(O7) The Heath pDWS	29	N/A	37	N/A
(O8) Upper Heyford Airfield LWS	33	N/A	39	N/A